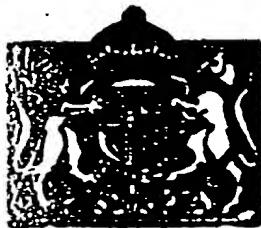


# PATENT SPECIFICATION



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U. S. PATENT OF

## COMPLETE SPECIFICATION

### Process for the Manufacture of New Preparations containing the Components for the Production of Ice Colours and their Application to Textile Printing

We, DUBAND & HUGUENIN A.G., a body corporate organised according to the Laws of Switzerland, of 40, Fabrikstrasse, Basle, Switzerland, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

10 The present invention refers to a process for the manufacture of new printing pastes, which contain the components for the production of ice colours, as well as to the application of these pastes in textile printing.

15 According to this invention a usual commercial ice colour preparation, which contains an azo-coupling-component and a stabilised diazo-compound (such as a diazoamine-compound or nitrosamine-compound) and which is capable of forming the dyestuff by acid treatment, a cellulose derivative, such as nitro-cellulose, cellulose acetate, ethyl-cellulose etc., and a body which splits off acid on heating, such as an ammonium salt of an organic acid (ammonium oxalate), taurine, 20 tartaric acid diethyl ester etc., are dissolved in a suitable solvent as hereinafter defined, and the solution is then printed on a textile fabric and finally the development of the dyeing is carried out by a drying process at a raised temperature (on a drying-drum or by means of a 25 pressing-iron).

30 By this procedure bright and fast prints, which do not need to be washed, are obtained in a simple way.

The following compounds come into 35 consideration as solvents for the purpose in question: aliphatic monohydric or

polyhydric alcohols, or ethers or esters thereof, aliphatic hydroxy-carboxylic acids or their ethers or esters, or mixtures of the same, such as methyl alcohol, ethyl alcohol, butyl alcohol, mono-methyl-glycol, mono-ethyl-glycol, diethylene-glycol - mono - ethyl - ether, diethylene-glycol-diethyl-ether, diethylene-di-oxide (dioxane), lactic acid ethyl ester, tartaric acid diethyl ester, butyl acetate, etc.

45 It is advantageous to add to the printing pastes one of the well known so-called softening agents, such as triphenyl phosphate, tricresyl phosphate etc., further if desired a dispersing agent, such as oleyl-N-methyl-tauride (sodium salt), amides of fatty acids derived from disubstituted ethylene diamine known under the registered trade mark "Sapamin" (see Disérens "Progrès réalisés dans l'application des Matières Colorantes", Tome I, page 210, Paris, Edition Teintex, 1937), Turkey red oil and others.

55 Instead of using a body which splits off acid as prescribed by the present invention, it is possible to use a free organic acid. In many cases, however, this is not advantageous because the printing pastes are thus less stable.

60 Compared with the printing process used hitherto for the corresponding ice colours the process under consideration has the following advantages:

(1) The steaming of the prints under acid conditions, or the acid treatment, is eliminated;

(2) The prints do not need to be washed.

75 The improved process is explained by the following Examples:

## EXAMPLES 1-3.

	1	2	3
5 An ice colour preparation containing the diazo-compound from 4-chloro-2-amino-anisole (stabilised in the known manner as diazo-amino-compound for instance with 4-sulpho-2-aminobenzoic acid) and the orthoaniside of 2:3-hydroxynaphthoic acid in the usual commercial form	—	—	parts
10 An ice colour preparation containing the diazo-compound from 4-nitro-2-amino-anisole (stabilised in the known way as diazo-amino-compound) and the para-aniside of 2:3-hydroxynaphthoic acid in the usual commercial form	—	—	—
15 An ice colour preparation containing the diazo-compound from meta-nitraniline (stabilised in the known manner as diazo-amino-compound) and the anilide of 2:3-hydroxynaphthoic acid in the usual commercial form	—	—	—
20 solvent A (see below)	20	20	20
25 nitro-cellulose-lacquer (see below)	60	60	60
30 ammonium oxalate dissolved in solvent A (see below)	0.4	0.4	—
tartaric acid diethyl ester mixed with ammonia and solvent A (see below)	15.6	15.6	—
	—	—	0.8
	—	—	0.1
	—	—	15.1
			100 parts.

The above mentioned solvent A has the following composition:	
35 100 parts by weight of diethylene-glycol-diethyl-ether.	
40 100 parts by weight of monoethyl-glycol.	
45 40 parts by weight of water.	
50 The above mentioned nitrocellulose-lacquer can for instance be composed as follows:	
collodion wool of low viscosity 2:1, 1/4 second (Hercules method)	15 — parts
55 collodion wool of high viscosity 1:1, 125 secs. (Hercules method)	— 20 „
butyl alcohol	20 20 „
butyl acetate	10 10 „
lactic acid ethyl ester	25 20 „
ethyl alcohol	30 27 „
triphenyl phosphate	— 3 „
	100 100 parts

Prints are made on cotton, and the printed material is dried on a drying-drum at 110-120°C. There are obtained bright prints, which are fast to rubbing.

As cellulose derivatives come also into consideration, besides the above mentioned nitrocellulose: acetyl cellulose, ethyl cellulose and others, as well as mixtures of such cellulose derivatives.

Having now particularly described and

ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A process for printing textiles which comprises dissolving in a suitable solvent of the group consisting of aliphatic monohydric and polyhydric alcohols, ethers and esters thereof, and aliphatic hydroxy-carboxylic acids and their ethers and esters, and mixtures of the same, an ice colour preparation which contains an azo coupling component and a stabilised diazo compound and which is capable of forming the dyestuff by an acid treatment, a body capable of splitting off acid when heated, a cellulose derivative, and if desired a softening agent and/or a dispersing agent, printing on a textile fabric with the solution thus obtained, and subjecting the printed fabric to a drying operation at a raised temperature.

2. Material which has been printed by the process claimed in Claim 1.

3. A printing colour which consists of a solution comprising an ice colour preparation which contains an azo coupling component and a stabilised diazo compound and which is capable of forming the dyestuff by an acid treatment, a body capable of splitting off acid when heated, a cellulose derivative, and if desired a softening agent and/or a dispersing

agent, dissolved in a suitable solvent of  
the group consisting of aliphatic mono-  
hydric and polyhydric alcohols, ethers  
and esters thereof, and aliphatic hydroxy-  
5 carboxylic acids and their ethers and  
esters, and mixtures of the same.

Dated this 5th day of August, 1940.

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